

IN THE CLAIMS

1-19. (Canceled)

20. (Currently Amended) A method, comprising:
receiving a text string having a plurality of characters; and
performing an unanchored search of a database of a stored patterns matching
one or more characters of the text string using a state machine, wherein the state
machine comprises a ternary content addressable memory (TCAM) and wherein the
performing comprises comparing a state of the state machine and one of the plurality
of characters with contents of a state field and a character field, respectively, stored in
the TCAM, wherein the contents of the state field and the character field stored in the
TCAM embody state transitions of the state machine, wherein the performing further
comprises:

converging all branches of the state machine, for a given stored pattern, to a
single next state when a first number of the characters are matched to the contents of
a state field to-of all state transitions of the branches.

21. (Original) The method of claim 20, wherein the single next state is an earlier
possible next state for at least one of the branches and wherein the converging
comprises transitioning at least one of the branches to the earlier possible next state.

22. (Currently Amended) The method of claim 1920, further comprising:
storing the characters in a first-in-first-out (FIFO) storage element having a
plurality of positions;
positioning a read pointer at a first position; and
adjusting the read pointer to a second position by an amount equal to N minus
1.

23-44. (Canceled)

45. (Currently Amended) A string search apparatus, comprising:
control circuitry to receive a text string having a plurality of characters; and
a pattern and state database including a ternary content addressable memory
(TCAM) coupled to an associated memory, wherein the pattern and state database is
operable to perform an unanchored search of the plurality of characters with patterns
stored in the TCAM and associated memory by comparing a state of the state machine
and one of the plurality of characters with contents of a state field and a character
field, respectively, within the patterns stored in the TCAM, wherein the contents of the
state field and the character field stored in the TCAM embody state transitions of the
state machine, wherein the control circuitry comprises:

a first-in-first-out (FIFO) storage element for storing the plurality of characters;
a register coupled to the FIFO storage element and the TCAM; and
a rollback circuit coupled to the FIFO storage element; and
a current prefix register.

46. (Original) The string search apparatus of claim 45, further comprising a
processor coupled to the pattern and state database.

47-48. (Canceled)

49. (Original) The apparatus of claim 45, wherein the pattern and state
database implements an Aho-Corasick algorithm.

50. (New) The apparatus of claim 45, wherein the contents of the state field
in the TCAM further comprise a previous result field.

51. (New) The apparatus of claim 45, wherein the FIFO comprises a read
pointer that can be selectively pushed back a number of the characters by the rollback
circuit.

52. (New) The method of claim 22, further comprising:
rolling back the read pointer a number of positions in response to a rollback
field.